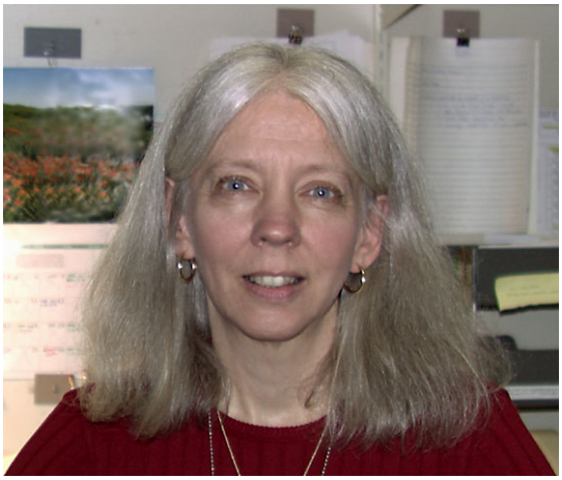

Clarice R. Weinberg, Ph.D.

Chief, Biostatistics Branch

Printable PDF version of this page.
Complete CV as a PDF document.

Click here to go to other available downloads.

Education:

Simmons College, Boston, MA	1972	BS Mathematics
Brandeis University, Waltham, MA	1974	M.A. Mathematics
University of Washington, Seattle, WA	1980	Ph.D. Biomathematics

Epidemiology is our best tool for studying human health effects of environmental exposures; unfortunately, this tool is inherently imperfect and prone to imprecision and biases. A general research theme of mine has been the development of improved methods for design and analysis that account for sources of bias, missing data, response heterogeneity, and mismeasurement in epidemiologic studies. Methodologic research is most fruitful when it arises in the context of real applications to epidemiology, and my extensive collaborations with epidemiologists at NIEHS have inspired nearly all of this work.

I am also interested in developing improved designs and methods of analysis to elucidate the joint etiologic roles of genetic and environmental susceptibility factors. Complex diseases, such as birth defects, heart diseases, neuro-degenerative disease, and cancer, are caused by time and the combined action of genetic susceptibility factors and exposures. One understudied area is the relation between the prenatal environment and health. Of particular interest is the interplay between genetic factors (both maternal and fetal) and maternal exposures in influencing fetal survival, embryologic development and postnatal longterm health. Methods being developed in this area will be applied to data from the ongoing study of oral clefting (cleft lip and palate) being

carried out in Norway (with Allen Wilcox as the Senior Investigator for NIEHS), and to a larger collaborative analysis involving data from Denmark, Norway, Iowa, and the Phillipines.

I am also currently collaborating with Dr. Dale Sandler of the Epidemiology Branch in initiating a major cohort study of breast cancer, called the Sister Study. We plan to recruit 50,000 women who are each the sister of a woman with breast cancer. Because they are sisters of women with cancer, the cohort will be enriched for the presence of susceptibility genes, and this enrichment will markedly enhance our statistical power for detecting gene-by-environment interactions, compared to a similarly-sized random cohort of women. We are currently just beginning our Phase I recruitment.

Selected Recent Presentations:

2001-June-14, Epidemiology Congress, Methods Plenary.
epicong01 Microsoft PowerPoint version
epicong01 in Web format

Selected Recent Publications:

Curtis, K.M, Savitz, D.A., Weinberg, C.R. and Arbuckle, T.E. The effect of pesticide exposure on time to pregnancy. Epidemiology 10(2): 112-117, 1999.

Dunson, D. Perrault, S., Chapin, R., and Weinberg, C.R. Summarizing the motion of self-propelled cells: applications to sperm motility. Biometrics 55:537-543, 1999.

Weinberg, C.R. and Umbach, D.M. Using pooled exposure assessment to improve efficiency in case-control studies. Biometrics 55(3): 718-726, 1999.

Baird, D.D., Weinberg, C.R., Zhou, H., Kamel, F., McConnaughey, D.R., Kesner, J., Wilcox, A.J. Preimplantation urinary hormone profiles and the probability of conception in healthy women. Fertility and Sterility 71(1):40-49, 1999.

Wilcox, A.J., Baird, D.D. and Weinberg, C.R. Time of implantation of the conceptus and loss of pregnancy. New England Journal of Medicine 340(23): 1796-9, 1999.

Weinberg, C.R. Allowing for missing parents in genetic studies of case-parent triads. American Journal of Human Genetics 64(4): 1186-1193, 1999.

Janowsky, E.C., Lester, G.E., Weinberg, C.R., Millikan, R.C., Schildkraut, J. M., Garrett, P.A., Hulka, B.S. The association between low levels of 1,25-dihydroxy vitamin D and breast cancer risk. Public Health Nutrition 2(3): 283-91, 1999.

Dunson, D., Baird, D.D., Wilcox, A.J. and Weinberg, C.R. Day-specific probabilities of clinical pregnancy based on two studies with imperfect measures of ovulation. Human Reproduction 14(7): 1835-9, 1999.

Weinberg, C.R. Methods for detecting parent-of-origin effects in genetic studies of case-parents triads. American Journal of Human Genetics 65: 229-235, 1999.

Weinberg, C.R. and Sandler, D.P. Gene-by-environment interaction for passive smoking and GSTM1? Invited editorial, Journal of the National Cancer Institute 91(23): 1985-6, 1999.

Umbach, D.M. and Weinberg, C.R. The use of case-parent triads to study joint effects of genotype and exposure. American Journal of Human Genetics 66:251-261, 2000.

Weinberg, C.R. and Dunson, D.B. Some issues in assessing human fertility. Invited Millennial vignette, Journal of the American Statistical Association 95(449): 300-303, 2000.

Dunson, D. and Weinberg, C.R. Modeling human fertility in the presence of measurement error. Biometrics 56:288-92, 2000.

Dunson, D.B. and Weinberg, C.R. Accounting for unreported and missing intercourse in human fertility studies. Statistics in Medicine, 19: 665-79, 2000.

Weinberg, C.R. and Umbach, D.M. Choosing a retrospective design to assess joint genetic and environmental contributions to risk. American Journal of Epidemiology 152(3): 197-203, 2000.

Dunson, D.B., Weinberg, C.R., Baird, D.D., Kesner, J., and Wilcox, A.J. Assessing human fertility using several markers of ovulation. Statistics in Medicine, 20(6): 965-78, 2001.

Dunson, D.B. Weinberg, C.R. and Wilcox, A.J. Modeling multiple ovulation, fertilization, and embryo survival in human fertlity studies. Biostatistics 2(2): 131-146, 2001.

Rieger, R., Kaplan, N. and Weinberg, C.R. Efficient use of sibling data for testing for linkage and associaion. Genetic Epidemiology, 20(2): 175-91, 2001.

Li, L., Darden, T.A., Weinberg, C.R., Levine, A.J. and Pedersen, L.G. Gene assessment and sample classification for gene expression data using a genetic algorithm/k-nearest neighbor method. Combinatorial Chemistry and High Throughput Screening 4(8): 727-39, 2001.

Weinberg, C.R. It's time to rehabilitate the P-value. Invited editorial, Epidemiology, 12(3): 288-290, 2001.

Wilcox, A.J., Dunson, D.D., Weinberg, C.R., Trussell, J., Baird, D.D. Likelihood of conception with a single act of intercourse: providing benchmark rates for assessment of post-coital contraceptives. Contraception, 63(4): 211-215, 2001.

Hoffman, Elaine Borland, Sen, P.K., and Weinberg, C.R. Within-cluster resampling. Biometrika 88(4):1121-34, 2001.

Schroeder, J.C., Olshan, A.F., Baric, R., Dent, G.A., Weinberg, C.R., Yount, B. Cerhan, J.R., Lynch, C.R., Schuman, L.M., Tolbert, P.E., Rothman, N., Cantor, K.P., Blair A. Agricultural risk factors for t(14;18) subtypes of non-Hodgkin's lymphoma Epidemiology 12:701-709, 2001.

Schroeder, J. and Weinberg, C.R. Use of missing-data methods to correct bias and improve precision in case-control studies where cases are subtyped but subtype information is incomplete. American Journal of Epidemiology 154(10): 954-62, 2001.

Li, L., Weinberg, C.R., Darden, T.A. and Pedersen, L.G. Gene selection for sample classification based on gene expression: study of sensitivity to choice of parameters of the GA/KNN method. Bioinformatics: 17(12): 1131-42, 2001.

Wilcox, A.J., Baird, D.D., Dunson, D., McChesney, R. and Weinberg, C.R. The natural limits of pregnancy testing in relation to the expected menstrual period. Journal of the American Medical

Association 286(14): 1759-61, 2001.

Rieger, R. and Weinberg, C.R. Analysis of clustered binary outcomes using within-cluster paired resampling. Biometrics 58:332-341, 2002.

Infante-Rivard, C., Rivard, G-E, Yotov, W., Genin, E., Guiguet, M., Weinberg, C., Gauthier R., Feoli-Fonseca, J-C Absence of association of thrombophilic polymorthisms with intrauterine growth restriction. New England Journal of Medicine: 347(1): 19-25, 2002.

Little, J., Bradley, L., Bray, M.S., Clyne, M., Dorman, J., Ellsworth, D.L., Hanson, J., Khoury, M., Lau, J., OÕBrien, T.R., Rothman, N., Stroup, D., Taioli, E., Thomas, D., Vainio, H., Wacholder, S., Weinberg, C. Reporting, appraising, and integrating data on genotype prevalence and gene-disease associations. American Journal of Epidemiology 156(4): 300-310, 2002.

Basso, O., Weinberg, C.R., Wilcox, A.J., Baird D.D., Olsen J. Subfecundity as a correlate of pre-eclampsia: A study within the Danish National Birth Cohort. American Journal of Epidemiology 157(3):195-202 2003.

Baird, D.D., Weinberg, C.R., McConnaughey, D.R., and Wilcox, A.J. Rescue of the corpus luteum in human pregnancy. Biology of Reproduction Feb;68(2):448-56, 2003.

Weinberg, C.R. Studying parents and grandparents to assess genetic contributions to early-onset disease. American Journal of Human Genetics 72(2):438-47, 2003.

Peddada, S.D., Lobenhofer, E.K., Li, L., Afshari, C.A., Weinberg, C.R., Umbach, D.M. Gene selection and clustering for time-course and dose-response microarray experiments using order-restricted inference. Bioinformatics 19(7):834-41, 2003.

Weinberg, C.R. and Morris, R. Invited Commentary: Testing for Hardy-Weinberg disequilibrium using a genome SNP scan based on cases only. American Journal of Epidemiology 158(5):401-3, 2003.

Harville, E.W., Wilcox, A.J., Baird, D.D., and Weinberg, C.R. Vaginal bleeding in very early pregnancy. Human Reproduction 18(9): 1944-7, 2003.

Weinberg, C.R. Invited Commentary: Making the most of genotype asymmetries. American Journal of Epidemiology 158(11): 1033-5, 2003.

Klotsman, M., Weinberg, C.R., Davis, K., Hartmann, K.E. A case-based evaluation of SRD5A1, SRD5A2, AR, and ADRA1A as candidate genes for severity of BPH. In press, Pharmacogenetics, 2004.

Wilcox, A.J. and Weinberg, C.R. Invited Commentary: The analysis of gestational-age-specific mortality: On what biological foundations? In press, American Journal of Epidemiology, 2004.

Basso, O. Wilcox, A.J., Baird, D.D., Weinberg, C.R., and Olsen, J. Height and risk of severe pre-eclampsia: A study within the Danish National Birth Registry. In press, International Journal of Epidemiology, 2004.

Kistner, E.O. and Weinberg, C.R. A method for using complete and incomplete trios to identify genes related to a quantitative trait. In press, Genetic Epidemiology, 2004.

Krewski, D., Lubin, J.H., Zielinski, J.M., Alavanja, M., Catalan, V.S., Field, R.W., Klotz, J.B., Letourneau, E.G., Lynch, C.F., Lyon, J.L., Sandler, D.P., Schoenberg, J.B., Steck, D.J., Stolwijk, J.A., Weinberg, C.R. and Wilcox, H.B. A combined analysis of North American case-control studies of residential radon and lung cancer. In press, Epidemiology, 2004.

Liu, D., Umbach, D., Peddada, S., Li, L., Crockett, P., Weinberg, C.R. A random-periods model for expression of cell-cycle genes. In review, Proceedings of the National Academies of Science, 2004.

Liu, D., Weinberg, C.R. and Peddada, S.D. Association and coherence of the activation times of cell-cycling genes under different experimental conditions: A geometric approach, in press, Bioinformatics, 2004.

Downloads Section:

The following files are available for downloading. Clicking on the link will open the file in a browser window - to download them either RIGHT CLICK (on a PC) or CONTROL CLICK (on a Mac) and pick Download Link To Disk (sometimes listed as Save Link to Disk).

SAS code to fit log-linear models for offspring gentoype effects, maternal genotype effects, and imprinting. Included is an output file that you can check output from your computer against. Developed by Richard Morris and Clare Weinberg.
Log_Linear_Model.lst Sample output (updated 2004/02/05)
Log_Linear_Model.sas SAS code (updated 2004/02/05)

SAS code to fit polytomous and additive logistic models for offspring gentoype effects. These models are described in the paper "A Method Using Complete and Incomplete Trios to Identify Genes Related to a Quantitative Trait", by Emily Kistner and Clare Weinberg, which is in press in Genetic Epidemiology.

AdditiveSASrev.doc is the Additive Logistic Model
ADDQPLEMSAS.doc is the Additive Logistic Model for Missing Parents
QPLEMSAS.doc is the Polytomous Logistic Model
completeQPLSAS.doc is the Polytomous Logistic Model for Missing Parents

---

Biostatistics Branch,
Environmental Diseases and Medicine Program,
Division of Intramural Research,
National Institute of Environmental Health Sciences,
National Institutes of Health,
Department of Health and Human Services.

Last updated: 2004/3/29
Please send any comments, corrections, or inquires regarding this page to Bill qb Quattlebaum (quattleb@niehs.nih.gov).